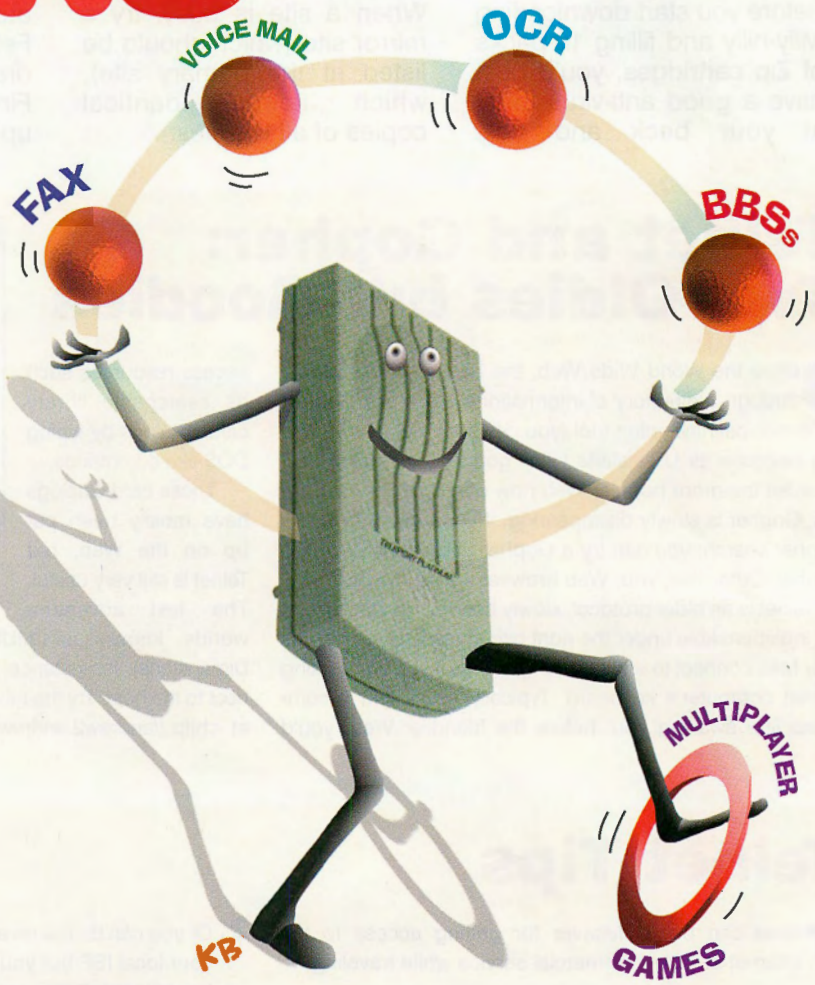
Teach Your Old Modem New Tricks

Five things it can do besides surf the Net.

By Kevin M. Savetz



So you want to buy a modem and join the inforush, or perhaps you already have a modem but haven't the first idea about what to do with it. This little box with the blinking lights seems like magic with its power to whisk you to almost any point on the planet (although certain parts of Antarctica haven't been wired yet). And, like magic, getting your modem to behave properly can be an arcane, obscure process, what with initialization strings, speeds, and V.-something standards. We'll make the technology seem less mystical by walking you through the basics of configuring your modem software. Then we'll suggest some ways to use your newfound knowledge.

Physical Stuff

Installing a modem on a Mac is the easy part. In these days of so-called "plug-and-play" modems for Windows computers, Mac owners can gloat a little in knowing that they've always had true ease of installation. You'll have to check your modem's manual for the specifics of hooking up, but basically it goes like this: Plug the power cord into the modem, plug the modem into your Mac (it doesn't matter much if you plug your modem into your Mac's modem port or its printer port; it just helps keep things straight), then install any software that came with your modem (which will probably be as simple as inserting a floppy disk and double-clicking an installer icon).

General Settings

Setting up your modem's software is trickier. You'll change several settings, enter an initialization string, and enter a dial string. All of this is done in your communications application. Every communications program is different; look for a button or menu item called "modem setup," or something similar, to access the modem settings. This is where your modem gets the rules for the way it should act when talking to other modems—sort of the punctuation for modem language.

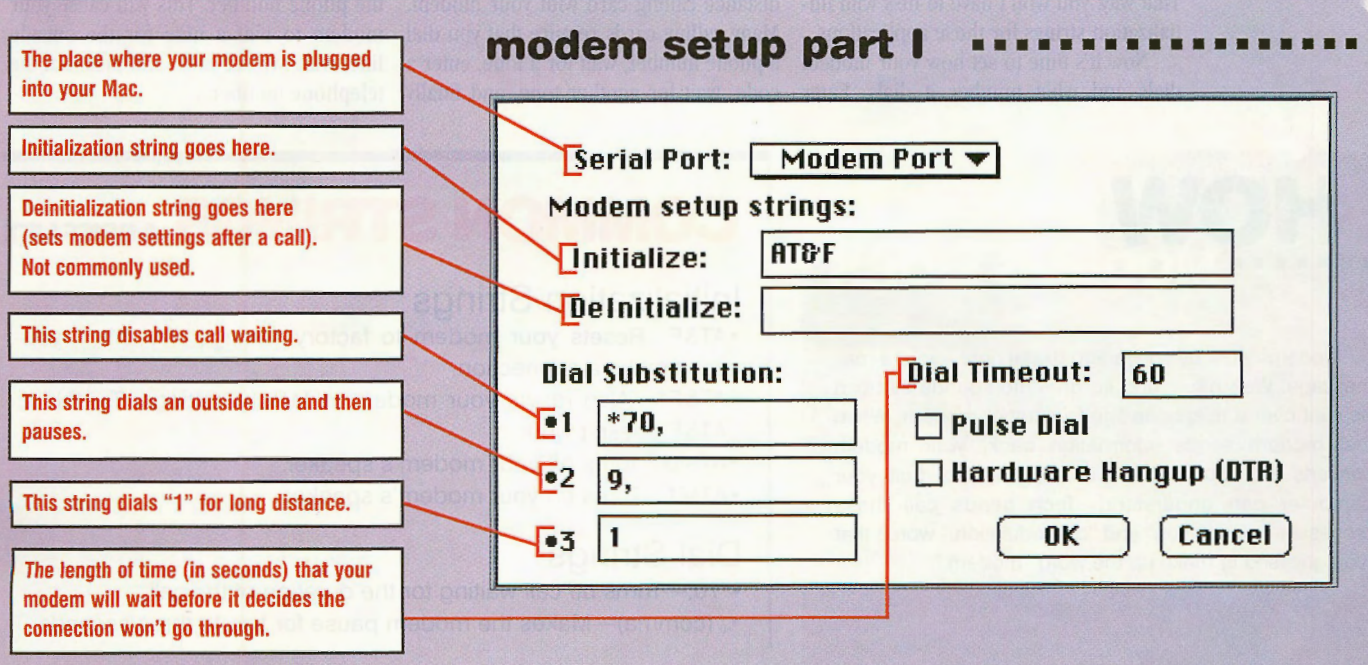
We'll start with some simple general modem settings. Set the Serial Port to Modem or Modem Port (assuming you plugged your modem into the modem port). This way, when your communications software looks for your modem, it knows where to find it. Next, set the data rate to 57,600 (57.6Kbps). Although this number is higher than your modem's actual speed, most modern modems can speed things up by compressing information as they transfer it. Some types of information, such as text, are much more compressible than other types, such as GIF graphics files. With compression, your modem can sometimes send and receive data at higher than its maximum speed. For instance, a 28.8Kbps modem can—when dealing with very compressible data—transfer information at upwards of 50Kbps. This ability is called "effective throughput." You may have to experiment with this setting to get the best result—newer Macs can easily handle a port speed of 57.6Kbps.

Flow control gives your Mac some control over how fast data is sent to it. If your modem (or the one on the other end) decides it's about to be overwhelmed by the amount of data coming at it, flow control allows the modem to say, "Hold on a second while I catch up." Under flow control, you should see two options: Xon/Xoff and hardware handshaking. Xon/Xoff is meant for low-speed modems (typically 2,400bps or slower). Turn it on if you'll be using those speeds. If you have a high-speed modem (that is, 9,600bps or faster), turn on the hardware handshaking. This requires a special cable that has wires used strictly for flow control. High-speed modems come with hardware handshaking cables. If your modem cable doesn't have hardware handshaking, turn Xon/Xoff on and hardware handshaking off, then go get yourself a hardware handshaking cable.

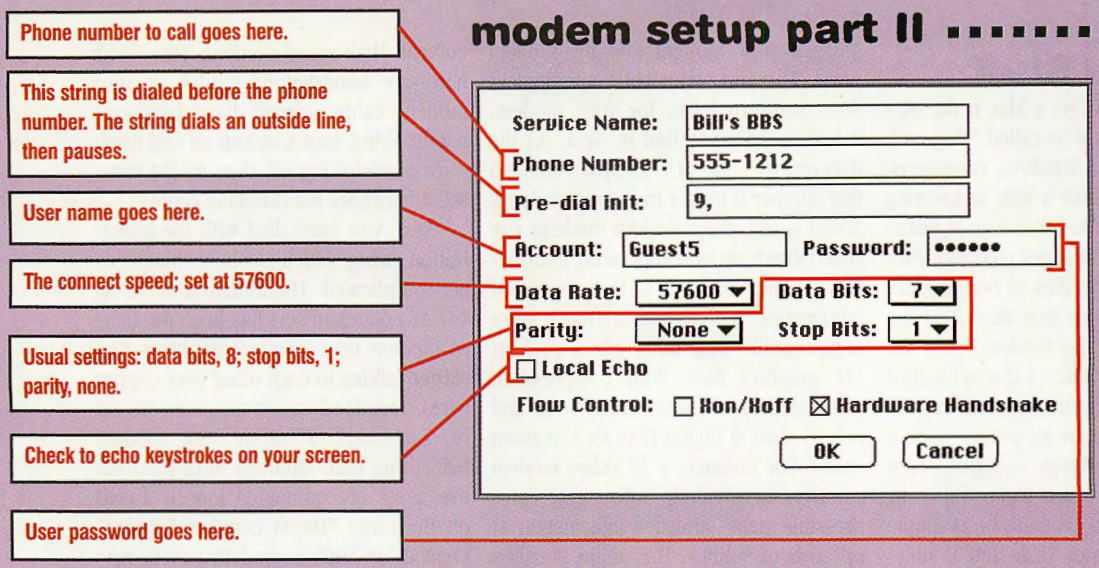
Next, you must deal with the initialization string, which is where things can get complicated. The initialization string (or AT command set) has been the bane of modem users since computers first started talking to each other over copper wires. Your modem software uses this set of commands to set up your modem before you dial. Although most modems use a set of commands loosely based on the same "Hayes command codes" created for 300bps modems, every type of modem has it own delicate differences. These commands are as powerful as they are obscure, and you can cause some problems if you don't know what you're doing.

That said, these commands may be your salvation if your modem is acting flaky. Here are a couple of command strings to try: AT&F and AT&F1. These are the two most common ways of resetting a modem to its default data mode. They tell the modem to "just move data; don't get fancy." Type one of these lines into the modem initialization string box in your modem setup dialog box, then try to connect. If your modem still won't connect, it may be time to drag out the manual and see if it sheds any light.

Other useful initialization strings don't directly affect how your modem



modem setup part II


Phone number to call goes here.
This string is dialed before the phone number. The string dials an outside line, then pauses.
User name goes here.
The connect speed; set at 57600.
Usual settings: data bits, 8; stop bits, 1; parity, none.
Check to echo keystrokes on your screen.
User password goes here.
Service Name: Bill's BBS
Phone Number: 555-1212
Pre-dial init: 9,
Account: Guest5
Password: ••••••
Data Rate: 57600
Data Bits: 7
Parity: None
Stop Bits: 1
Local Echo
Flow Control: Non/Xoff Hardware Handshake
OK
Cancel

connects. If the buzzing and beeping that your modem makes when you connect scares the cat and wakes the children, type "ATM0" in the command string to turn off the speaker in your modem. If you want to turn it back on, replace that string with "ATM1."

Thankfully, many programs include a large set of initialization strings. Just tell the program what type of modem you have (typically through a pop-up menu), and it will enter settings for you properly. These files are called modem scripts, and Apple is currently developing a utility that will help you create modem scripts for use with Apple Remote Access and Open Transport/PPP if no script is available. That way, you won't have to fuss with initialization strings for those applications.

Now it's time to set how your modem dials and what number it dials. Enter the number you want to call in the phone number box. You can enter certain numbers in front of the phone number (or in the predial box, if your modem software offers this) so that your modem will modify the kind of phone call it makes. Three dialing strings are particularly useful. They cause the modem to pause while dialing, to dial out, and to turn off call waiting.

Pausing While Dialing

The comma delay is probably the single most useful dial string command. It tells the modem to wait two seconds before proceeding with the rest of the dial string, and you can place it anywhere in the telephone number. One example of the comma's strength is in using a long-distance calling card with your modem. Many calling cards require that you dial a phone number, wait for a tone, enter a code, wait for another tone, and finally enter the number that you wish to dial. By carefully using the comma delay in your dial string, you can make this process relatively painless. So, for example, entering the number 02125551212,,,,70755512349999 in the dial box will dial a long-distance number, wait eight seconds, then enter a calling card code.

Dialing Out

Remember, not all telephone systems are alike, especially in offices and hotels. Depending on where you are, you may need to dial a special digit (usually an eight or nine) to get a telephone line to the outside world. To do this, just enter the digit followed by a comma—for example, "9,"—before the phone number. This will cause your modem to dial a nine for the outside line, wait two seconds, and then dial the telephone number.

HOT TIP

The AT portion of a modem initialization string tells the modem to pay attention to the next command. What follows is the command itself. For example, "M1" means turn the external speaker on, and "&F" means reset to factory settings. See your modem's documentation for more AT commands, or visit the manufacturer's Web site for modem scripts.

HOW MODEMS WORK

Modems work by converting digital data—your e-mail message, Web page, and so on—into sounds that can be sent over a telephone line to another modem. When that modem sends information back, your modem converts the sounds back into digital data that your computer can understand. Tech heads call these processes "modulation" and "demodulation," words that (you guessed it) make up the word "modem."

COMMON STRINGS A BRIEF LIST

Initialization Strings

- AT&F—Resets your modem to factory settings. Try this if you can't make a connection.
- AT&F1—Also resets your modem to factory settings. Try this if AT&F doesn't work.
- ATM0—Turns off your modem's speaker.
- ATM1—Turns on your modem's speaker.

Dial Strings

- *70,—Turns off call waiting for the duration of the call.
- , (comma)—Makes the modem pause for two to three seconds.

Turning Off Call Waiting

If you have call waiting, you'll find that the little beep that indicates an incoming call can wreak havoc on your connection, slowing it down or knocking you offline completely. In most areas, you can temporarily disable call waiting by having your modem dial "*70,"—that's star seven zero comma—before the phone number. After the modem call is finished, the call waiting function will return to normal.

The Details of Connections

The last things to fuss with are the settings for data bits, stop bits, and parity. These settings tell your modem how to send chunks of data. The data bits field (set at either seven or eight) tells your modem how many bits to send before sending a stop bit (set at either zero or one), which is merely a signal saying, "OK, this chunk of data is done; get ready for another." Parity is a way of checking for errors in the data that was sent. The most common settings are: data bits, 8; stop bits, 1; and parity, None. Don't change these settings unless told to do so by the person on the other end of the modem connection.

Old Modem, New Tricks

Believe it or not, your modem is multitalented. If you're using it to dial up the Internet, you're getting access to an incredible amount of information and countless communities. Even so, your modem can give you more. Depending on the kind of modem you own, you may be able to use it as a fax machine, as a personal voice mail system, or even to play games in real time with faraway friends.

Your modem's life is bigger than the Internet. If your modem currently is a one-trick pony, here are new tricks you can teach it.

Multiplayer Games

Why sit home alone playing a computer game all by yourself when you can sit home alone playing a computer game with someone else? A plethora of Mac games let you dial up a friend who also has that game to play together, competitively, or in cooperation.

Although online gaming can be loads of fun (no game-generated intelligence can match the cunning of a real, live human opponent), it can also be frustrating not to have the other players within shouting distance. Some games let you type to "chat" with other players while you're online, which is an essential tool for certain psychological tactics.

The Ambrosia Cafe
Networkable Mac Games
Table of Contents:
Bolo
whirlpool
n cannot build on a tank The man cannot build on a tank let my people free.

LET THE GAMES BEGIN: The Ambrosia Web site offers a plethora of info about online games, of which the ever-popular Bolo is one.

Online games come in two flavors: those that make direct modem-to-modem connections and those that you play over the Internet. The modem-to-modem games allow only two players, but many Internet games allow a dozen or more players at a time.

Try Lode Runner Online, an updated version of the 1980s classic run-and-shoot game; Doom, a popular 1990s run-and-shoot game; Oxyd, a challenging puzzler; or Bolo, a tank game. You can find a list of many more games to play over a modem at the Web site <http://www.ambrosiasw.com/netgames>. This site also includes a ton of information to familiarize you with how online gaming works.

You may also want to consider the software program Kali for the Macintosh. Kali is shareware that fools your game into thinking that it's connected to a large IPX network. Games that can use the Kali network include Descent, Descent 2, Warcraft, Warcraft II, Command & Conquer, Apache, Terminal Velocity, and VR Pool. Go to <http://www.kali.net> for more information.

Getting a game up and running is only half the battle. You also need someone to play with. Check out the UseNet newsgroup <comp.sys.mac.games> to find other gamers who share your passions, or hook up to one of the Internet Relay Chat channels to find a worthy opponent.

HOW TO BUY A MODEM

If you're thinking about buying a modem, consider these features:

BUY THE FASTEST MODEM YOU CAN AFFORD. If you can't afford a 28.8 or 33.6Kbps modem, don't hammer the piggy bank until you can. You'll be glad you waited.

GET A MODEM THAT USES AN ACCEPTED COMMUNICATIONS STANDARD. When you buy a modem, you'll find a list of the protocols that it supports. Sometimes modem manufacturers rush to get faster modems on the market before the final draft of a new protocol is finished. If you buy one of these modems, you may find that it doesn't work at its highest speed with other brands of modems.

As you might expect, modems need to understand each other in order to communicate effectively. Thus, an international standards committee helps to define the protocols that modems use to communicate. By carefully sticking to the protocols, manufacturers can be sure that their modems will communicate with other brands.

MAKE SURE THE MODEM OFFERS THE V.34 STANDARD. It will run at 28.8Kbps, maybe faster. Recently, the V.34 standard was enhanced to allow connections at up to 33.6Kbps, so depending on when it was manufactured, a V.34 modem might max out at 28.8 or 33.6Kbps.

AVOID NEW MODEMS WITH THE V.FC OR V.FAST PROTOCOLS. V.FC was a temporary specification for 28.8Kbps modems used before the V.34 standard was hammered out. V.FC modems tend to be less reliable at high speeds than V.34 modems, but many V.FC modems are upgradable to V.34 at little or no charge.

DON'T WAIT AROUND FOR A 56KBPS MODEM. Several companies have announced them, but these modems work at high speed under only very special circumstances, and it's too early to tell if they'll be worthwhile for everyone.

Local Bulletin Board Systems

Bulletin board systems, or BBSs, are private computers into which you dial. Smaller and more intimate than online services, a BBS may be run out of someone's office, bedroom, or basement. Bulletin board systems offer message boards, live chat, electronic mail, file downloads, and online games—but most important, they bring a sense of community to the people online in your geographic area.

Depending on the system on which it runs, a BBS's look and feel can be anything from a text-only command-line interface to a full-fledged graphical Mac interface. Many bulletin boards, such as those using FirstClass or TeleFinder software, have special client software that allows users to access the BBS using a graphical interface.

Bulletin boards often focus on a particular organization—for instance, a user group—or a hobby. Tens of thousands of BBSs operate around the country, and there's no telling what you might find on one in your area. Here's how to locate a BBS and a few of the things you can do there:

- Ask at your local user group meeting or computer store for a list BBSs in your area, and see what your local online community has to offer.
- Use a BBS's unique local angle to your advantage. If you need a computer consultant to exorcise your old PC, or want to sell an old car, it makes sense to use a BBS to find someone nearby.
- Some BBSs offer free access to electronic mail, which can be a great way to introduce your kids (or spouse or parent) to the Internet without overwhelming them with the details.

BMUG BEGAN LIFE as Berkeley Macintosh Users Group and has since grown into one of the largest BBSs in the United States.

PLANET BMUG
BERKELEY, CALIFORNIA
DeskTop
DeskTop 0 Files 5 Folders
MailBox
BMUG Central
Conferences
File Libraries
System Bulletins
PLANET BMUG
BERKELEY, CALIFORNIA
BMUG CENTRAL
BMUG News, Community Center, Membership Services, Planet BBS Q/A, Planetary Atlas, Rules of Conduct
BMUG Central
Conference 40 Files 11 Folders
BMUG CENTRAL
Macworld Expo
BMUG Community Center
BMUG Specials
Planetary Atlas
Planet BBS Q/A
Donations to BMUG
Minutes & Calendars
Choice Products
Conference of the Week
Volunteers
Rules of Conduct
Sean O'Connor 2K BMUG West 11/25/96 11/20/96 3:42 PM
Ann M. Wrixon 3K Mentors Needed 11/19/96 1:49 PM
Colleen Miller 2K Press Release for 24 Hours... 11/19/96 10:58 AM
bruce tinde 2K superhero match II 11/18/96 1:00 PM
bruce tinde 2K FIRST MATCHING GOAL REACHED! 11/17/96 10:16 AM
bruce tinde 1K $450 so far! 11/16/96 3:24 PM
bruce tinde 1K wavering superhero - matching 11/15/96 6:55 PM
Sean O'Connor 2K Big Main Meeting 11/21 11/15/96 4:06 PM
Colleen Miller 1K Computer Pickup 11/15/96 2:30 PM

Office Tools

Unless your modem is more than a few years old, chances are good that it includes fax capabilities. That is, your modem and computer together can send and receive faxes over the phone line. This can be an inexpensive way to send information to colleagues who don't have electronic mail access. If you would like to receive faxes regularly but don't want to invest in a fax machine, your fax modem can do the job. Sending and receiving faxes from your Mac can save paper and money, but it has drawbacks, too. You'll find it impossible to fax a signed contract, for example, unless you have a scanner. Also, to be able to receive faxes at any time, you'll probably have to leave your computer humming 24 hours a day.

Even if your modem includes the ability to transmit and receive faxes, it won't do a bit of good unless you also have fax software for your Mac. Many fax modems come with fax software, some don't. (And if yours did, it may be a "lite" version with crippled features.) Here are more tidbits about a modem's office uses:

- Some fax software includes built-in optical character recognition (OCR) capability to turn graphical faxes into text files that your word processor can read. Even if your software doesn't, you can try using OCR software to read your faxes into your word processor.
- If you expect to receive many faxes, consider installing a second phone line dedicated to the fax modem. If you'll be receiving faxes at all hours, you don't want the family phone ringing at 3 a.m.
- Use your fax software to create customized cover sheets for your personal and business faxes.
- Don't have a scanner? Use your office fax machine to fax graphics and text to your computer's fax modem for quick-and-dirty grayscale scans.

If your modem is equipped for it, you can even use it as an answering machine or voice mail system. Depending on the hardware and software you have, your modem may be able to take messages and play them back through your Mac's speakers, or you may be able to set up a more complex system replete with multiple mailboxes ("Press one to leave a message for Bob, two for Zoe, three for Sparky the dog..."). Don't plan on replacing your company's 50-line voice mail system, though, because a voice mail modem can handle just one phone line at a time. Some configurations allow you to call in from anywhere to retrieve your messages, and even accept both fax and voice messages on one line.

Voice-compatible modems aren't as common as plain vanilla fax modems, so check with the manufacturer to see if yours can handle the job.

Some voice modems even double as a speakerphone, allowing you to chat hands-free over the phone—not while you're online, though. If your modem and your phone company offer the Caller ID service, you can arm yourself with the foreknowledge of who's calling before you even pick up the receiver. Using special software, Caller ID puts the phone number of the calling party on your Mac's screen a split second before the phone rings. (This is a great way to avoid calls from an angry boss who wants to know why your work is late... not that you'd ever do that.) To perform this trick, you'll need Caller ID from your phone company, which probably will cost you a few dollars each month. Here are some uses for this particular wizardry:

- Use a voice-capable modem to set up multiple voice mailboxes for family members or employees in a small office.
- Use Caller ID to screen calls from your ex-girlfriend, mother, or other *persona non grata* in your life.
- Be sure to use a good-quality microphone for recording voice mail or using your modem as a speakerphone, to avoid sounding like a Munchkin locked in an echo chamber.

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